

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

2006. 2. 15

To:
PARK, Kyungwan

GIP Patent Law Counselors, Baeklim Bldg.
#102 Yeoksam-dong 823-33, Gangnam-guSeoul135-
933Republic of Korea


PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY

(PCT Rule 66)

Applicant's or agent's file reference PCT0501KAIST		Date of mailing (day/month/year) 15 FEBRUARY 2006 (15.02.2006)
International application No. PCT/KR2005/000346	International filing date (day/month/year) 04 FEBRUARY 2005 (04.02.2005)	Priority date(day/month/year) 12 FEBRUARY 2004 (12.02.2004)
International Patent Classification (IPC) or both national classification and IPC G03F 7/00(2006.01)i		
Applicant KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY et al		

1. ☒ The written opinion established by the International Searching Authority :
☐ is ☒ is not
considered to be a written opinion of the International Preliminary Examining Authority.
2. This _____ (first, etc.) opinion contains indications relating to the following items:
- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application
3. The applicant is hereby invited to reply to this opinion.
- When ?** See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).
- How ?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.
- Also** For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis.
For an informal communication with the examiner, see Rule 66.6.
For an additional opportunity to submit amendments, see Rule 66.4.
- If no reply is filed**, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary report on patentability
(Chapter II of the PCT) must be established according to Rule 69.2 is: 02 JUNE 2006 (02.06.2006)

Name and mailing address of the IPEA/KR
 Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer
KIM, Hee Seung

Telephone No. 82-42-481-8157



**WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY EXAMING AUTHORITY**

International application No.

PCT/KR2005/000346

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Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which was filed, unless otherwise indicated under this item.

- ☒ This opinion is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☒ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."):

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed/furnished
pages _____ received by this Authority on _____
pages _____ received by this Authority on _____
- ☐ the claims:
pages _____, as originally filed/furnished
pages _____, as amended (together with any statement) under Article 19
pages _____ received by this Authority on _____
pages _____ received by this Authority on _____
- ☐ the drawings:
pages _____, as originally filed/furnished
pages _____ received by this Authority on _____
pages _____ received by this Authority on _____
- ☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to the sequence listing (specify): _____

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to the sequence listing (specify): _____

**WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY EXAMING AUTHORITY**

International application No.

PCT/KR2005/000346

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3-29
	Claims	1, 2
Inventive step (IS)	Claims	
	Claims	3-29
Industrial applicability (IA)	Claims	1-29
	Claims	

2. Citations and explanations :

Reference is made to the following document:

D1: JP 2000-241607 A

1. Novelty

1) Concerning claim 1

Claim 1 of the present invention is concerned with polymer patterns having at least one pattern which is concave from the surface of the polymer patterns in a direction perpendicular to the substrate and extends in a direction parallel to the substrate, wherein the vertical cross-section of the concave pattern has at least one curved surface.

D1 relates to a microlens array and a forming method thereof wherein the concave pattern is formed on a substrate.

The fig. 4 of D1 shows polymer patterns having at least one pattern which is concave from the surface of the polymer patterns in a direction perpendicular to the substrate and extends in a direction parallel to the substrate, wherein the vertical cross-section of the concave pattern has at least one curved surface. Therefore, the subject matter of claim 1 does not seem to be novel(PCT Article 33(2)).

2) Concerning claim 2

D1 discloses that the vertical cross-section of the concave pattern has a circular or oval shape. Therefore, the subject matter of claim 1 does not seem to be novel(PCT Article 33(2)).

(Continued on Supplemental Sheet.)

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International application No.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V.

2. Inventive Step

1) Concerning claims 3 - 5

Even if claims 3-5 of the present invention define the arrangement of the polymer patterns, the kind of a polymer and the shape of the vertical cross-section of the concave pattern, these can be deduced from the cited prior art document without an inventive effort. Accordingly, the subject matter of claims 3-5 does not appear to involve an inventive step.

2) Concerning claims 6 and 7

Claims 6 and 7 relate to a method of forming the polymer patterns having the vertical cross-section of the concave pattern on a substrate. The polymer patterns having the concave pattern do not have the technical features which is particular in comparison with D1. And, the forming method of the present invention is well known in forming a pattern. Accordingly, the subject matter of claims 3-5 does not appear to involve an inventive step.

3) Concerning claims 8-29

Claims 8-29 relate to a metal film pattern, a metal pattern, a plastic mold using thereof, and a microlens array. Even if the present invention uses a metal instead of polymer for forming a pattern, this selection of the material can be easily made by a person skilled in the art and the method of forming a pattern, a plastic mold and a microlens array using thereof, can be easily invented by a person skilled in the art as well. Therefore, the subject matter of claims 8-29 does not appear to involve an inventive step.

The subject matter of claims 1-29 meets the criteria set out in PCT Article 33(4).

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